

**ABSTRACT OF THE DISCLOSURE**

**OPTICAL TRANSMISSION SYSTEM AND METHOD**

- 5 A hybrid optical transmission system comprising an optical transmitter and receiver. The transmitter includes an input for receiving an encoding signal and an encoder arranged to encode an optical signal with any one of a plurality of encoding signatures according to the encoding signal. The optical receiver comprises a grating decoder connected to receive the encoded optical signal from the input, the grating decoder
- 10 incorporating a decoding signature complementary to a matched one of the encoding signatures so as to decode the encoded optical signal when encoded with the matched one of the encoding signatures. A hybrid system is thus provided that uses (passive) grating decoders at the receiver in combination with active drive-signal-based encoders at the transmitter. In this way, flexibility can be retained for the transmitter
- 15 hardware, whereas the advantages of grating decoders can be exploited at the receivers.

Figure 1(a)